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What is claimed is:

| 1 | 53017. | A method of imp | lementing a | two-dimensional | inverse |
|---|----------|------------------|-------------|-----------------|---------|
| 2 | discrete | cosine transform | , comprisin | g: | |

executing two one-dimensional inverse discrete cosine transforming functions, each of the functions being controlled to operate on a matrix of coefficients in either of two different directions.

- 2. The method of claim 1 in which one of the directions is row order.
- 3. The method of claim 1 in which one of the directions is column order.
- 4. The method of claim 1 in which a sequencer determines which direction each function operates in for a given matrix.
- 5. The method of claim 1 in which an address generator generates an address for each coefficient in the matrix.
- 6. The method of claim 1 in which the functions are concurrently executed in the same direction on two different matrices of coefficients.
- 7. The method of claim 1 in which the functions are concurrently executed in the same direction, the functions

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- switching periodically and concurrently to the other direction.
- 1 8. A storage medium bearing a machine-readable program
 2 capable of causing a machine to:

execute two one-dimensional inverse discrete cosine transforming functions, each of the functions being controlled to operate on a matrix of coefficients in either of two different directions.

- 9. The medium of claim 8 in which one of the directions is row order.
- 10. The medium of claim 8 in which one of the directions is column order.
- 11. The medium of claim 8 in which a sequencer determines which direction each function operates in for a given matrix.
- 12. The medium of claim 8 in which an address generator generates an address for each coefficient in the matrix.
- 13. The medium of claim 8 in which the functions are concurrently executed in the same direction on two different matrices of coefficients.
- 14. The medium of claim 8 in which the functions are concurrently executed in the same direction, the functions

switching periodically and concurrently to the other direction.

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1 15. A method of implementing a two-dimensional inverse discrete cosine transform, comprising:

executing a first one-dimensional inverse discrete cosine transforming function in a first direction on a first matrix of coefficients to produce a matrix of intermediate results; and

executing a second one-dimensional inverse discrete cosine transforming function in a second, different direction on the matrix of intermediate results concurrent with the first function executing in the second direction on a second matrix of coefficients.

16. The method of claim 15 in which the first direction is row order.

- 17. The method of claim 15 in which the first direction is column order.
- 18. The method of claim 15 in which the functions switch periodically and concurrently between the first and second directions.
- 1 19. A storage medium bearing a machine-readable program capable of causing a machine to:

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execute a first one-dimensional inverse discrete cosine transforming function, where the first function executes in a first direction on a first matrix of coefficients, producing a matrix of intermediate results; and

execute a second one-dimensional inverse discrete cosine transforming function, where the second function executes in a second, different direction on the matrix of intermediate results concurrent with the first function executing in the second direction on a second matrix of coefficients.

- 20. The medium of claim 19 in which the first direction is row order.
 - 21. The medium of claim 19 in which the first direction is column order.
 - 22. The medium of claim 19 in which the functions switch periodically and concurrently between the first and second directions.
- - two one-dimensional inverse discrete cosine transform
 blocks;
- 5 a memory block;
 - in one of two states, each state indicating the direction each

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| one-dimensional | nverse | discrete | cosine | transform | block |
|------------------|--------|----------|--------|-----------|-------|
| operates in; and | ı | | | | |

an address generator block.

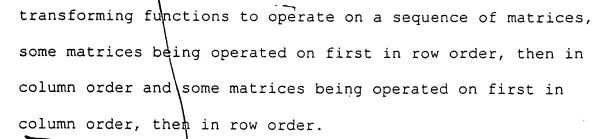
- 24. The apparatus of claim 23 in which the address generator block is to generate addresses for the one-dimensional inverse discrete cosine transform blocks in the direction indicated by the state of the sequencer.
- 25. A computer system including a processor, comprising:
 two one-dimensional inverse discrete cosine transform
 blocks;

a memory block;

a sequencer block, the sequencer block alternately being in one of two states, each state indicating the direction each one-dimensional inverse discrete cosine transform block operates in; and

an address generator block.

- 26. The system of claim 25 in which the address generator block is to generate addresses for the one-dimensional inverse discrete cosine transform blocks in the direction indicated by the state of the sequencer.
- 27. A method of implementing a two-dimensional inverse discrete cosine transform, comprising:
- 3 executing two one-dimensional inverse discrete cosine



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